

Case study #01

November 2023

ResilienTogether is a Defra-funded project that aims to build a Smart Catchment to enhance flood resilience. Our Innovation Case Studies showcase new and creative approaches to building a smarter, more resilient catchment.

Stilling Tube Post

New Stainless steel adapter post design for level gauge installation, eliminating the need for concrete and allowing the gauge to be relocated as many times as required.

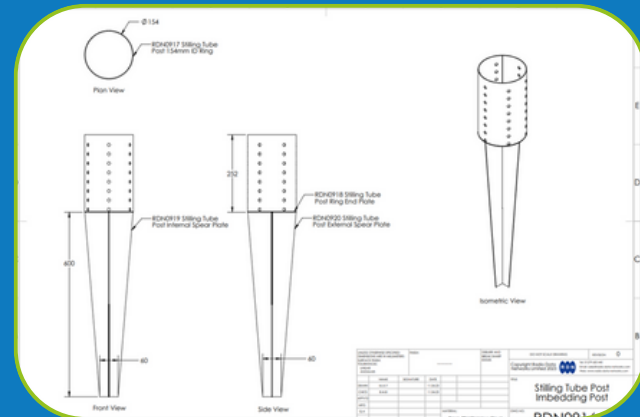


Figure 1. Stilling tube post design

ResilienTogether

ResilienTogether is creating a Smart Catchment, through innovative technologies and techniques, to reduce flood risk to people and places, enhance the water environment in the Pix Brook catchment and improve community resilience in the face of climate change.

The project is achieving this through a close-knit partnership that collaborate to deliver six inter-related work packages. This case study comes from WP1 Flow Monitoring which aims to enhance the flow monitoring and telemetry network to improve understanding of flows within the catchment and establish near real-time flow monitoring.

Challenge

Radio Data Networks Ltd (RDN) are installing river level monitoring network across the Pix Brook. A number of monitoring locations have no suitable structure to mount a gauge and experience highly variable flows with upstream parts of the running dry in summer months.

Moreover, as the project progresses, gauges will need to be redeployed at new locations as the focus of monitoring moves from understanding baseline conditions to monitoring 'slow the flow' measures and forecasting flood risk.

Innovative Solution

RDN have designed a stainless steel adapter and stilling tube post. The level gauge is slotted into the Stilling Tube Post 154mm ID Ring which has an end plate beneath. This is fixed onto a 600mm long Stilling Tube Post Internal Spear Plate that is embedded into the river bed (Figure 1).

When there is no flow, a trigger sensor acknowledges this and reduces data upload frequency. A micro power sensor then detects when flow picks back up to reactivate the default monitoring frequency. This save battery life and extends the life of the gauge.

This new and innovative design is installed on the Pix Brook tributary that joins at Stotfold. It overcomes the barriers of fixed gauges in low flow environments by creating a flexible and efficient approach to installation. These innovations in redeployment and energy saving provide the maximum benefit to river level monitoring for the least cost.

Through the design and installation process, learning has been gained on level monitoring costs, product specification and performance that may be of interest to organisations seeking to develop their own monitoring networks.

Benefits

1. Easy installation

The Stilling Tube Post allows for easy installation by eliminating the need for concrete and overcoming the barriers of watery environments.

2. Mobile gauging

As the post is embedded in the ground with no use of concrete, the gauge is mobile. This allows for re-deployment and movement to other locations.

3. Free standing gauging

Gauges usually need to be installed on existing structures such as bridges or gates. This post means the gauge can be free standing, unlocking the ability to gauge in many more locations.

If you want to hear more, please contact ResilienTogether.project@Centralbedfordshire.gov.uk or visit our website <https://resilientogether.org.uk/>